UNITED STATES PATENT AND TRADEMARK OFFICE

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SCIENTIFIC-ATLANTA, INC.
INTELLECTUAL PROPERTY DEPARTMENT
5030 SUGARLOAF PARKWAY
LAWRENCEVILLE, GA 30044

EXAMINER
STORM, DONALD L

ART UNIT	PAPER NUMBER
2654	4

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *December 3, 2001 through October 14, 2003*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-98_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17,19-51,53-57,61,63-66,68-85,88,96 and 98* is/are rejected.

7)☒ Claim(s) *18,52,58-60,62,67,86,87,89-95 and 97* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

    a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2 & 3* .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

U.S. Patent and Trademark Office

PTOL-326 (Rev. 11-03)   Office Action Summary   Part of Paper No.

DETAILED ACTION

Specification

1.   The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Appropriate correction is required.

The specification should teach the following claimed subject matter: graphically displaying the received user command.

Page 37 discusses a display confirming a match, but not a display of anything received. The Examiner was unable to find any description clearly related to this subject matter in the specification.   This feature and any feature of the invention should be apparent in the descriptive portion of the specification with clear disclosure as to its import, and where possible, it should be identified in the descriptive portion of the specification by reference to the drawing, designating the item or items therein to which the term applies. This is necessary in order to insure certainty in construing the claims in the light of the specification.

2.   The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Appropriate correction is required.

The specification should teach the following claimed subject matter: audibly identifying the received user command.

Page 38 discusses advancing the program audio related to a command in the incoming audio buffer, but not audible identification of a command. The Examiner was unable to find any clear description related to this subject matter in the specification. This feature and any feature of

the invention should be apparent in the descriptive portion of the specification with clear

disclosure as to its import, and where possible, it should be identified in the descriptive portion of

the specification by reference to the drawing, designating the item or items therein to which the

term applies. This is necessary in order to insure certainty in construing the claims in the light of

the specification.

3.   The Examiner notes, without objection, the possibility of informalities in the abstract. The

Applicant may wish to consider changes during normal review and revision of the disclosure. The

abstract should not refer to purported merits or speculative applications of the invention as in lines

11-12 and 15-16. See MPEP § 608.01(b).

Claim Informalities

4.   Claims 18, 52, 58-60, 62, 67, 86, 87, 89-95, and 97 are objected to as being (directly or

indirectly) dependent upon a rejected base claim. See MPEP § 608.01(n)V. The claim(s) would

be allowable over the prior art of record if rewritten to include all of the limitations of the base

claim and any intervening claims. If any objections or rejection(s) under 35 U.S.C. 112 appear in

this Office action, the claim(s) should also be rewritten to overcome them. Certain assumptions

that establish clarity for the limitations have been considered for the claims, as described next or

elsewhere in this Office action.

5.   Claims 5, 6, 12, 22, 23-30, 37, 38, 76-90, and 94 are objected to under 37 CFR 1.75(a)

because the meanings of the following phrases need clarification: (claim 5) the compressed

digitized comprises; (claim 12) the at least a portion of the digitized speech; (claim 22) the version

in memory (unless memory is inherent is storing); (claim 29) the function associated with the

dictionary speech; (claim 37, claim 38) the received user command (claim 76, claim 78) the at

least on function. Claims 6, 23-30, 77, 79, 80-90, and 94 inherit the objections by dependency.

6.   The Examiner notes, without objection, the possibility of informalities in the claims. The

Applicant may wish to consider changes during normal review and revision of the disclosure.

     a.   In claim 10, line 3, if the singular noun "dictionary" is intended to be the subject of

    the plural verb "are", it does not agree in number.

     b.   In claim 26, lines 2-3, is a word or phrase missing from the phrase "a user

    command each matching score"?

Claim Rejections - 35 USC § 102

7.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale
> in this country, more than one year prior to the date of application for patent in the United States.

Houser

8.   Claims 1-4, 7, 10-17, 19, 31-51, 53-57, and 63-66 are rejected under 35 U.S.C. 102(b) as

being anticipated by Houser et al. [US Patent 5,774,859], already of record.

9.   Regarding claim 1, Houser [at column 1, lines 6-11] describes voice commanding of

electronic equipment and the claimed limitations recognizable to one versed in the art as the

following elements:

receiving, digitizing, compressing at a remote control device speech representing a user

command, transmitting it wirelessly to electronic equipment, and decompressing it [see Figure 5

items 16, 166, 214, 200, 328, 330, and their descriptions especially at columns 14-16 of IR

signals, RF signals, and spectral data providing speech input and interfacing to the processor and

memory data];

performing at the electronic equipment a function based upon a stored instruction

associated with the digitized speech [at column 15, lines 46-59, as compare the sounds spoken

with the template vocabulary to recognize the spoken command, execute it, or forward it].

10.   Regarding claim 2, Houser also describes:

the speech is instructions [at column 15, lines 49-50, as the sounds are a spoken command

for controlling];

the speech is unwanted ambient audio [at column 17, lines 30-38, as an ambient noise and

television audio which is received at the microphone is subtracted].

11.   Regarding claim 3, Houser also describes:

the unwanted audio is background noise generated by sources other than the electronic

equipment the speech is unwanted ambient audio [at column 17, lines 30-38, as an ambient noise

alternative to television audio which is received at the microphone is subtracted].

12. Regarding claim 4, <u>Houser</u> also describes:

transmitting over a wireless communications channel for digitized media [see Figure items 214, 324, 326, 328, and their descriptions especially at columns 16, of IR signals, RF signals, and spectral data].

13. Regarding claim 7, <u>Houser</u> also describes:

wireless transmission over an RF channel [at column 16, lines 3-9, as transmitting radio frequency signals between transmitter and receiver].

14. Regarding claim 10, <u>Houser</u> also describes:

compare the speech (signal) to a dictionary of speech segments [at column 15, lines 46-59, as compare the sounds spoken with the template vocabulary];

the dictionary is pre-programmed by a user [at column 19, lines 44-55, as the recognizer learns speaker preferences by user selection].

15. Regarding claim 11, <u>Houser</u> also describes:

subtracting the unwanted ambient [at column 17, lines 32-38, as subtract the ambient noise].

16. Regarding claim 12, <u>Houser</u> also describes:

subtracting before comparing [at column 17, lines 32-38, as subtracting the known television signal assists in preventing recognition of television voices].

17.   Regarding claim 13, Houser also describes:

unwanted ambient comprises audio generated by the electronic equipment [at column 17,

lines 30-38, as television audio which is received at the microphone is subtracted].

18.   Claim 14 sets forth additional limitations similar to limitations set forth in claim 3. Houser

describes the additional limitations as indicated there.

19.   Regarding claim 15, Houser also describes:

unwanted ambient is emitted by a speaker of a television set [at column 13, line 56-column

14, line 19, as TV audio supplied to speakers, for example including a television set].

20.   Regarding claim 16, Houser also describes:

unwanted ambient is a program broadcast by a TV station [at column 10, lines 20-50, as

television signal of channels or programs transmitted globally, i.e. to every subscriber].

21.   Regarding claim 17, Houser also describes:

storing the unwanted audio in memory in the electronic equipment [see Figure items 196,

206 and their descriptions especially in columns 13 and 14 of storing analog and digital audio

separated from the head-end input services].

22.   Regarding claim 19, <u>Houser</u> also describes:

the stored unwanted audio is updated with new unwanted audio [see Figure items 196, 206

and their descriptions especially in columns 13 and 14 of storing analog and digital audio

separated from the head-end input services].

updating occurs as time progresses [at column 9, lines 1-27, as the television program

audio is supplied as a data stream];

the new unwanted audio is television program audio [at column 10, lines 20-50, as

television signal of channels or programs].

23.   Regarding claim 31, <u>Houser</u> also describes:

a digital home communications terminal [at column 12, lines 27-47, as the digital tuner of

the subscriber terminal unit].

24.   Regarding claim 32, <u>Houser</u> also describes:

cable television home communications [at column 7, lines 57-58, as a cable

communications link].

25.   Regarding claim 33, <u>Houser</u> also describes:

satellite home communications [at column 7, lines 57-59, as a satellite communications

link].

26.   Regarding claim 34, <u>Houser</u> also describes:

querying the user for the speech command [at column 19, lines 12-26, as display the indication "Listening" to the user to indicate the user may speak sounds for controlling].

27.   Regarding claim 35, <u>Houser</u> also describes:

the query is graphic [at column 19, lines 12-26, as the indication "Listening" is displayed on screen].

28.   Regarding claim 36, <u>Houser</u> also describes:

the query is audible [at column 19, lines 12-26, as the indication may be aural].

29.   Regarding claim 37, <u>Houser</u> also describes:

graphically displaying a received user command [at column 21, lines 8-15, as display on screen RECOGNIZE SURF UP if recognized that the user says "SURF UP"].

30.   Regarding claim 38, <u>Houser</u> also describes:

audibly identifying a received user command [at column 20, lines 11-19, as set the volume to the number NUMBER if recognized that the user says "VOLUME NUMBER"].

31.   Regarding claim 39, <u>Houser</u> also describes:

the speech controls an electronic program guide appliance [at column 25, lines 40-45, as spoken commands navigate movement within the grid of an electronic program guide displayed on a television screen].

32.   Regarding claim 40, Houser also describes:

association with a television and a graphical user interface presentable on a display for the

EPG [at column 25, lines 40-45, as spoken commands navigate movement within the grid of an

electronic program guide displayed on a television screen].

33.   Regarding claim 41, Houser also describes:

the EPG is in memory in the electronic equipment [at column 23, lines 23-24, as EPG data

is stored in memory at subscriber terminal unit].

34.   Regarding claim 42, Houser also describes:

the decompressed digital speech controls a EPG navigation of the electronic equipment [at

column 25, lines 40-45, as spoken commands navigate movement within the grid of an electronic

program guide displayed on a television screen].

35.   Claim 43 sets forth limitations similar to claim 1. Houser describes the limitations as

indicated there. Houser also describes additional limitations as follows:

a first microphone [at column 15, line 66, as microphone];

an enable microphone function [at column 17, lines 18-27, as press to speak];

a processor for digitizing [at column 16, lines 1-2, as codec];

a transmitter [at column 16, line 3, as transmitter].

36.   Regarding claim 44, <u>Houser</u> also describes:

input voice commands [at column 15, lines 46-59, as the sounds spoken are recognizes as a

command].

37.   Regarding claim 45, <u>Houser</u> also describes:

function keys [at column 16, lines 53-54, as keypad for commands].

38.   Regarding claim 46, <u>Houser</u> also describes:

a function key is associated with inputs that are voice commands [at column 21, lines 49-

51, as a <Recognize> button must be actuated when the user speaks the command].

39.   Regarding claim 47, <u>Houser</u> also describes:

a function key in combination with a voice command [at column 21, lines 49-51, as a

<Recognize> button actuated when the user speaks the command];

the function key is pressed [at column 19, line 9, as press the <Recognize> button].

40.   Regarding claim 48, <u>Houser</u> also describes:

voice command of a television [at column 18, lines 27-28, as spoken control of a

television].

41.   Regarding claim 49, <u>Houser</u> also describes:

voice command of a EPG [at column 23, line 39, as spoken access to EPG data].

42.   Regarding claim 50, <u>Houser</u> also describes:

enable microphone is active with a function key [at column 21, lines 49-51, as a

<Recognize> button must be actuated when the user speaks the command].

the key is depressed [at column 19, line 9, as press the <Recognize> button];

the key is on the remote [at column 19, line 7, as <Recognize> button on remote].

43.   Regarding claim 51, <u>Houser</u> also describes:

enable microphone is a spring-force level switch [at column 17, lines 18-19, as press to

speak button (or <Recognize>) button];

the switch is active when a user depresses it [at column 17, lines 21-22, as speech circuitry

is powered when the button is pressed].

44.   Regarding claim 53, <u>Houser</u> also describes:

a function key is from a group including a button [at column 17, lines 18-19, as

<Recognize> button].

45.   Regarding claim 54, <u>Houser</u> also describes:

a standby command that identifies the microphone is enabled [at column 17, lines 22-27,

as "ATTENTION" may be used as a command to "wake up" and recognize].

46.   Regarding claim 55, <u>Houser</u> also describes:

the standby command is generated autonomously by the remote control [at column 17,

lines 22-28, as inhibit other commands except for 30 seconds after "ATTENTION" is recognized].

47.   Regarding claim 56, Houser also describes:

the standby command is generated at completion of inputs [at column 20, lines 38-42, as

the speech interface is except for 30 seconds after "ATTENTION" is recognized].

48.   Regarding claim 57, Houser also describes:

completion of input is detected by the remote control when the input level falls below a

threshold [at column 16, lines 25-31, as enable interface only when an element in remote control

exceeds a certain level].

49.   Regarding claim 63, Houser also describes:

a second microphone to assist in canceling noise [at column 17, lines 30-32, as a second

microphone which subtracts noise from the signal];

the noise is received by the first microphone [at column 17, lines 30-38, as an ambient

noise and television audio which is received at the microphone is subtracted].

50.   Regarding claim 64, Houser also describes:

a processor to digitize inputs of the second microphone [at column 17, lines 30-38, as a

second microphone sample the noise to subtract it from the spoken signal].

51.   Regarding claim 65, Houser also describes:

encode speech receive by the microphone [see Figure 5 items 16, 166, 214, 200, 328, 330,

and their descriptions especially at columns 14-16 of IR signals, RF signals, and spectral data

providing speech input and interfacing to the processor and memory data];

encode when the input level is above a threshold established by the processor [at

column 16, lines 25-31, as enable interface only when an element in remote control exceeds a

certain level].

52.   Regarding claim 66, Houser also describes:

a standby command that identifies the microphone is enabled [at column 17, lines 22-27,

as "ATTENTION" may be used as a command to "wake up" and recognize].

Claim Rejections - 35 USC § 103

53.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

54.   This application currently names joint inventors. In considering patentability of the claims
under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was
commonly owned at the time any inventions covered therein were made absent any evidence to
the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor
and invention dates of each claim that was not commonly owned at the time a later invention was
made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35
U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Houser and Salazar

55.   Claims 5, 6, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Houser et al. [US Patent 5,774,859] in view of Salazar et al. [US Patent 5,802,467], both already

of record.

56.   Regarding claim 5, although Houser describes transmission by the wireless device as

applied for claim 1, Houser does not explicitly describe a transmission antenna.

Like Houser, Salazar [at column 3, line 41-column 4, line 17] describes voice commanding

of electronic equipment over wireless RF and IR links, and Salazar describes:

transmitting via a transmission antenna [at column 4, lines 7-13, as antenna and emitting

devices].

Salazar also describes the use of the antenna. In view of Salazar then, it would have been

obvious to one of ordinary skill in the art of wireless transmission at the time of invention to

include Salazar's concept of transmitting via a transmission antenna with Houser's system to

couple the signals for transmission to provide an open space wireless channel.

57.   Regarding claim 6, although Houser describes reception of the signal transmitted by the

wireless device as applied for claim 1, Houser does not explicitly describe a receiver antenna.

Like Houser, Salazar [at column 3, line 41-column 4, line 17] describes voice

commanding of electronic equipment over wireless RF and IR links, and Salazar describes:

receiving via a receiver antenna [at column 4, lines 7-13, as antenna and detection

devices].

Salazar also describes the use of the antenna. In view of Salazar then, it would have been

obvious to one of ordinary skill in the art of wireless reception at the time of invention to include

Salazar's concept of receiving via a receiver antenna with Houser's system to provide an open

space wireless channel for the signals for reception.

58.   Claim 8 sets forth additional limitations similar to limitations set forth in claim 5. Houser

and Salazar describe and make obvious the limitations as indicated there.

59.   Claim 9 sets forth additional limitations similar to limitations set forth in claim 6. Houser

and Salazar describe and make obvious the limitations as indicated there.

Houser and Tsurufuji

60.   Claims 20-28, 30, 69, 70, 72, 74-81, 88, 96, and 98 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Houser et al. [US Patent 5,774,859], already of record, in view of

Tsurufuji et al [US Patent Application Publication 2001/0029449].

61.   Regarding claim 20, Houser also describes:

        the unwanted audio is television program audio [at column 10, lines 20-50, as television

signal of channels or programs].

        Houser [see Figure items 196, 206] also describes storing the unwanted audio in memory

in the electronic equipment. However, Houser does not explicitly describe storing a time-shifted

delay version of the unwanted audio.

Like Houser, Tsurufuji [at 16 and 64] describes voice commanding of electronic

equipment. Tsurufuji also provides details of removing ambient audio from the speech before

command recognition. Tsurufuji describes:

storing the unwanted ambient audio [at 43, as noise is stored];

the stored unwanted ambient audio is a time shifted delay version [at 58, as noise

parameters are made coincident in time with voice by a delay before the filter bank];

the unwanted audio is television [at 64, as a television set background].

Houser [at column 17, lines 32-38] describes that using noise-free voice commands

improves the system response to the commands. However, Houser does not provide details of

obtaining proper voice and noise signals. It would have been obvious to one of ordinary skill in

the art of noise elimination at the time of invention to include Tsurufuji's concept of stored,

delayed noise signals to implement Houser's noise elimination because Tsurufuji points out that

delaying the noise makes the noise and the voice plus noise coincident in time for the noise to be

subtracted.

62.   Regarding claim 21, Houser also describes:

the unwanted audio is television program audio [at column 10, lines 20-50, as television

signal of channels or programs].

Houser [see Figure items 196, 206] also describes storing the unwanted audio in memory

in the electronic equipment. However, Houser does not explicitly describe storing a time-shifted

delay version of the unwanted audio.

Like <u>Houser</u>, <u>Tsurufuji</u> [at 16 and 64] describes voice commanding of electronic equipment. <u>Tsurufuji</u> also provides details of removing ambient audio from the speech before command recognition. <u>Tsurufuji</u> describes:

storing the unwanted ambient audio in memory of the electronic equipment [at 43 and Fig. 1, items 12 and 54, as noise is stored in buffers of memory for the microcomputer];

the stored unwanted ambient audio is a time shifted delay version [at 58, as noise parameters are made coincident in time with voice by a delay before the filter bank];

the unwanted audio is television [at 64, as a television set background].

<u>Houser</u> [at column 17, lines 32-38] describes that using noise-free voice commands improves the system response to the commands. However, <u>Houser</u> does not provide details of obtaining proper voice and noise signals. It would have been obvious to one of ordinary skill in the art of noise elimination at the time of invention to include <u>Tsurufuji</u>'s concept of stored, delayed noise signals to implement <u>Houser</u>'s noise elimination because <u>Tsurufuji</u> points out that delaying the noise makes the noise and the voice plus noise coincident in time for the noise to be subtracted.

63.   Regarding claim 22, <u>Tsurufuji</u> also describes:

the delayed noise is matched with the unwanted ambient audio in the speech [at 57-58, as the delayed noise is made coincident in time with the noise in the sound signal inputted at the microphone].

64.   Claim 23 sets forth additional limitations similar to limitations set forth in claim 11. <u>Houser</u> describes the additional limitations as indicated there.

65.   Regarding claim 24, Tsurufuji also describes:

identifying a dictionary speech segment associated with a speech portion [at 60, as

compare voice data as voice parameters to any number of reference patterns and produce the one

most similar with value S].

66.   Regarding claim 25, Tsurufuji also describes:

assign a matching score to the speech associated with the dictionary speech segment [at 60,

as compare voice data as voice parameters to any number of reference patterns and produce the

one most similar with value S].

67.   Regarding claim 26, Houser also describes:

the speech is a command [at column 15, lines 49-50, as the sounds are a spoken command

for controlling]; and

Tsurufuji also describes:

rejecting the portion of the speech when the matching score falls below a threshold [at 60,

as voice data as voice parameters compared to any number of reference patterns and produce the

one most similar with value S that can not be recognized unless the threshold is exceeded].

68.   Regarding claim 27, Houser also describes:

request the user to repeat the command [at column 19, lines 35-36, as prompt the user to

repeat the command].

69.   Regarding claim 28, Houser also describes:

graphically displaying the function associated with the identified speech segment [at

column 25, lines 2-25, as display on screen the menu commands or substrings which the system is

configured to recognize for the user to speak].

70.   Regarding claim 30, Tsurufuji also describes:

produce a matching score between at least one portion of the speech and at least one

dictionary speech segment [at 60, as compare voice data as voice parameters to any number of

reference patterns and produce the one most similar with value S].

Houser also describes:

the score represents a likelihood [at column 33, lines 45-48, as set forth the order of

commands based on a determination of likelihood of command sequences].

71.   Regarding claim 69, Houser [at column 1, lines 6-11] describes an HCT that provides

voice commanding of electronic equipment and the claimed limitations recognizable to one versed

in the art as the following elements:

a receiver receiving encoded digitized signals that represent a voice command from a

remote [see Figure items 16, 166, 214, 328, and their descriptions especially at columns 14-16, of

IR signals, RF signals, and spectral data];

a speech decoder decodes the encoded digitized signals [see Figure items 16, 214, 328,

330, 200, and their descriptions especially at columns 6-7 and 14-16, of providing speech input

and interfacing to the processor and memory data];

an audio buffer for storing audio broadcasted by a device in electrical communication with

the receiver [see Figure items 160, 162-2, and 196 and their descriptions especially at columns 12-

13 of storing TV audio];

eliminate the stored (broadcasted) audio from the decoded (speech input) signals [at

column 17, lines 32-38, as eliminate any television audio which is received at the microphone by

subtracting the know television signal which is generated by the unit];

match the resulting decoded (speech input) signal to commands for functions of the HCT

[at column 15, lines 46-59, as compare the sounds spoken with the template vocabulary to

recognize the spoken command, execute it, or forward it];

a processor that does the elimination and a comparison component that does the

comparison [see Figure item 200 and its description especially throughout columns 13-17 of main

processor and program code for operation of the unit].

Houser [see Figure items 196, 206, 306, 334] also describes storing the unwanted audio in

RAM in the electronic equipment and using RAM as a scratch pad for the unit's processing of the

input speech and noise . However, Houser does not explicitly describe using the scratch pad RAM

for storing the decoded representation of input speech.

Like Houser, Tsurufuji [at 16 and 64] describes voice commanding of electronic

equipment. Tsurufuji also provides details of removing ambient audio from the speech before

command recognition. Tsurufuji describes:

storing at least a portion of the input speech [at 32, as the buffer stores the speech

parameter data inputted from the microphone].

Houser [at column 17, lines 32-38] describes that using noise-free voice commands

improves the system response to the commands. However, Houser does not provide details of

obtaining proper voice and noise signals. It would have been obvious to one of ordinary skill in

the art of noise elimination at the time of invention to include Tsurufuji's concept of storing input

speech signals to implement Houser's noise elimination because Tsurufuji points out that stored

noisy speech can be time aligned with the noise so that the corresponding noise can be subtracted,

and noise-free speech can be stored to improve the recognition of the spoken commands.

72.   Regarding claim 70, Houser also describes:

        the signals further comprise unwanted signals [at column 17, lines 32-38, as television

audio which is received at the microphone is subtracted].

73.   Regarding claim 72, Houser also describes:

        an infrared receiver receiving IR commands transmitted from the remote device [see

Figure items 160, 214, 324, 326, 328, and their descriptions especially at columns 16, of IR

signals].

74.   Regarding claim 74, Houser also describes:

        an electronic program guide application controllable by the remote device via voice

command [see Figures item 166 and its description especially at column 25, lines 40-45, of an

electronic program guide displayed on a television screen and navigating movement within its grid

by spoken commands].

75.   Regarding claim 75, Houser also describes:

program information is in memory and accessible by the EPG [at column 23, lines 20-24,

as EPG data concerning a program is stored in memory at subscriber terminal unit].

76.   Regarding claim 76, Houser also describes:

the memory has a dictionary of terms associated with commands for functions that the

HCT can perform [see Figure items 305, 306, 307, 332, 334, 336, and their descriptions especially

at columns 15-16 of the template vocabulary to recognize the spoken command and executing

control, such as power or tuning].

77.   Regarding claim 77, Houser also describes:

each term is associated with a television function [at column 25, lines 40-45, as spoken

commands navigate movement within the grid of an electronic program guide displayed on a

television screen].

78.   Claim 78 sets forth additional limitations similar to limitations set forth in claim 76.

Houser and Tsurufuji describe and make obvious the additional limitations as indicated there.

79.   Regarding claim 79, Houser also describes:

each term is associated with a machine state of the EPG [see Figures item 166 and its

description especially at column 25, lines 40-45, of spoken commands navigating movement

within the grid displayed on a television screen of an electronic program guide].

80.   Regarding claim 80, Houser also describes:

procedures effected by the processor [see Figure item 200 and its description especially

throughout columns 13-17 of main processor and program code for operation of the unit].

Regarding claim 80, Tsurufuji also describes:

a training procedure and application effected by the processor constructing the dictionary

of terms [at 62, as a microprocessor executes registration mode and stores the reference pattern

table].

81.   Regarding claim 81, Houser also describes:

each term is associated with commands of a navigation task the HCT can perform [at

column 25, lines 28-45, as defined speech commands navigate movement within the grid of an

electronic program guide displayed on a television screen].

82.   Regarding claim 88, Houser also describes:

the dictionary is stored in memory of the HCT [at column 28, line 50-column 29, line 65,

as the EPG text downloaded to the subscriber terminal and phoneme dictionary in the subscriber

terminal register as the speech recognizer's vocabulary].

83.   Regarding claim 96, Houser also describes:

a graphical interface application displaying a command representing a function to perform

[at column 25, lines 2-25, as display on screen the menu commands or substrings which the

system is configured to recognize for the user to speak].

84.   Regarding claim 98, <u>Houser</u> also describes:

a microphone for receiving audio [at column 15, line 66-column 16, line 1, as a

microphone with a sound signal].

*<u>**Houser and Tsurufuji and Kimura**</u>*

85.   Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over <u>Houser</u> et al. [US

Patent 5,774,859], already of record, in view of <u>Tsurufuji</u> et al [US Patent Application Publication

2001/0029449] and <u>Kimura</u> [US Patent 5,267,323], already of record.

86.   Regarding claim 29, <u>Houser</u> also describes:

identifying the function associated with the identified speech segment [at column 25,

lines 2-25, as display on screen the menu commands or substrings which the system is configured

to recognize for the user to speak].

However, <u>Houser</u> does not explicitly identify the functions audibly.

Like <u>Houser</u>, <u>Kimura</u> [at abstract] describes voice commanding of electronic equipment.

<u>Kimura</u> also describes:

audibly identifying the function associated with the identified speech segment [at

column 18, line 63-column 19, line 3, as reproduce as a voice output a command word

corresponding to a desired control command].

It would have been obvious to one of ordinary skill in the art of voice command systems at

the time of invention to include <u>Kimura</u>'s concept of audibly indicating the control commands by

playing them as voice output because <u>Kimura</u> [at column 18, lines 21-62] points out that the user

could be reminded of available commands at a remote unit without a visual display.

Houser and Tsurufuji and Thompson

87.   Claims 61 and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Houser et

al. [US Patent 5,774,859], already of record, in view of Tsurufuji et al [US Patent Application

Publication 2001/0029449] and Thompson et al. [US Patent 5,335,276].

88.   Regarding claim 61, Houser [at column 17, lines 32-38] describes that using noise-free

voice commands improves the system response to the commands. However, Houser does not

provide details of eliminating the noise from the input speech plus noise voice command.

In particular, Houser and Tsurufuji do not explicitly describe a digital filter.

Like Houser, Thompson [at abstract] describes voice commanding of electronic equipment

for providing access to information. Thompson also provides details of removing ambient audio

from the speech before command recognition. Thompson describes:

a digital signal filter reducing ambient noise [at column 5, lines 11-22, as a filter network

in the DSP circuit to remove ambient noise].

It would have been obvious to one of ordinary skill in the art of digital filters at the time of

invention to include Thompson's concept of a filter network implemented in Houser's digital

processor to provide the noise reduction to the speech and noise signal of the microphone before

applying the speech input signal for recognition because both Houser and Tsurufuji point out that

noise-free speech will improve the recognition of the spoken commands.

89.   Regarding claim 71, Houser [at column 17, lines 32-38] describes that using noise-free

voice commands improves the system response to the commands. However, Houser does not

provide details of eliminating the noise from the input speech plus noise voice command.

In particular, Houser and Tsurufuji do not explicitly describe a digital filter.

Like Houser, Thompson [at abstract] describes voice commanding of electronic equipment

for providing access to information. Thompson also provides details of removing ambient audio

from the speech before command recognition. Thompson describes:

a digital signal filter reducing unwanted signals for the (speech) signals [at column 5,

lines 11-22, as a filter network in the DSP circuit to remove ambient noise]. ;

It would have been obvious to one of ordinary skill in the art of digital filters at the time of

invention to include Thompson's concept of a filter network implemented in Houser's digital

processor to provide the noise reduction before applying the speech input signal for recognition

because both Houser and Tsurufuji point out that noise-free speech will improve the recognition of

the spoken commands.

Houser and Bender

90.   Claim 68 is rejected under 35 U.S.C. 103(a) as being unpatentable over Houser et al. [US

Patent 5,774,859] in view of Bender et al. [International Publication WO 00/18066], both already

of record.

91.   Regarding claim 68, Houser [at column 11, lines 31-50] describes that the head-end may

also provide Internet access for the subscriber. However, Houser does not provide details of how

Internet service will be provided to the subscriber's terminal.

In particular, <u>Houser</u> does not explicitly describe IP addresses.

To interface a terminal unit to the Internet, <u>Bender</u> [see title] provides details of a method. <u>Bender</u> describes:

a IP address associated with the home communications terminal [at page 9, lines 7-27, as an IP address assigned to the terminal equipment unit of the station for the user].

To provide the Internet access that <u>Houser</u> suggests, it would have been obvious to one of ordinary skill in the art of use <u>Bender</u>'s concept of assigning IP addresses by <u>Houser</u>'s system because <u>Houser</u>'s user could then transmit or receive IP datagrams of the home communications terminal unit

Houser and Tsurufuji and Bender

92.   Claim 73 is rejected under 35 U.S.C. 103(a) as being unpatentable over <u>Houser</u> et al. [US Patent 5,774,859], already of record, in view of <u>Tsurufuji</u> et al [US Patent Application Publication 2001/0029449] and <u>Bender</u> et al. [International Publication WO 00/18066], already of record.

93.   Regarding claim 73, <u>Houser</u> [at column 11, lines 31-50] describes that the head-end may also provide Internet access for the subscriber. However, <u>Houser</u> does not provide details of how Internet service will be provided to the subscriber's terminal.

In particular, <u>Houser</u> and <u>Tsurufuji</u> do not explicitly describe IP addresses.

To interface a terminal unit to the Internet, <u>Bender</u> [see title] provides details of a method. <u>Bender</u> describes:

a IP address associated with the home communications terminal [at page 9, lines 7-27, as an IP address assigned to the terminal equipment unit of the station for the user].

To provide the Internet access that <u>Houser</u> suggests, it would have been obvious to one of

ordinary skill in the art of use <u>Bender</u>'s concept of assigning IP addresses by <u>Houser</u>'s system

because <u>Houser</u>'s user could then transmit or receive IP datagrams of the home communications

terminal unit

Houser and Tsurufuji and Katayama

94.   Claims 82-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over <u>Houser</u> et al.

[US Patent 5,774,859], already of record, in view of <u>Tsurufuji</u> et al [US Patent Application

Publication 2001/0029449] and <u>Katayama</u> [US Patent 4,831,653].

95.   Regarding claim 82, <u>Houser</u> [at columns 29-30] describes the reference templates of the

voice signals for the commands to control the devices, and <u>Houser</u> describes getting these

templates from the service provider so that their distribution can be controlled and charged.

<u>Houser</u>, however, does not describe the preparation of these templates to make them available at

the service provider. <u>Tsurufuji</u> [at 5] describes that the dictionary of terms to be used in speech

recognition must be input and stored to be available. <u>Tsurufuji</u> describes the same input

processing for registering the templates as for subsequent recognition. However, neither <u>Houser</u>

nor <u>Tsurufuji</u> describes details of preparing good reference templates.

In particular, <u>Houser</u> and <u>Tsurufuji</u> do not explicitly describe averaging several versions of

templates representing a voice-activated command during registration of the templates.

To provide good templates to be sent from <u>Houser</u>'s service provider to the subscriber unit,

it would have been obvious to one of ordinary skill in the art of speech recognition that acoustical

signals would have to have been provided as <u>Tsurufuji</u> indicates. One way of providing acoustical

signals for creating reference templates suitable for <u>Houser</u> and <u>Tsurufuji</u> is provided by

<u>Katayama</u>. <u>Katayama</u> describes:

a (speech recognition) training procedure [at title, as registering speech information to

make a voice dictionary];

multiple versions of signals representing the voice activated command [at abstract, as N

versions of the same spoken word];

averaging them [at abstract, as register one spoken word of a well-averaged voice pattern].

<u>Katayama</u> [at abstract] points out that registering one typical spoken word of a well-

averaged voice pattern results in a reference pattern of high accuracy that increases the system

speech recognition rate. In view of <u>Katayama</u>, it would have been obvious to one of ordinary skill

in the art of speech recognition such as <u>Houser</u>'s at the time of invention to include <u>Katayama</u>'s

concept of averaging multiple repetitions of the same spoken word during the preparation of

<u>Houser</u>'s dictionary signals because of the highly accurate templates provided by <u>Katayama</u>.

96.   Regarding claim 83, <u>Katayama</u> also describes:

the dictionary stores the multiple versions [at column 2, lines 40-44, as the speech words to

be registered which were inputted through the microphone are stored in a voice memory at storage

locations].

97.   Regarding claim 84, <u>Katayama</u> also describes:

each version of signals represents the input [at abstract, as a same spoken word a plurality

of times];

<u>Houser</u> describes:

the signals represent command input associated with a television command[at column 25,

lines 40-45, as spoken commands navigate movement within the grid of an electronic program

guide displayed on a television screen].

98.   Regarding claim 85, <u>Katayama</u> also describes:

each version of signals represents the input [at abstract, as a same spoken word a plurality

of times];

<u>Houser</u> describes:

the signals represent command input associated with an EPG application command [at

column 25, lines 40-45, as spoken commands navigate movement within the grid of an electronic

program guide displayed on a television screen].

Conclusion

99.   The following references here made of record are considered pertinent to applicant's

disclosure:

Bender et al. [US Patent 6,535,918] describes the same as WO 00/18066.

100.   Any response to this action should be mailed to:

> Commissioner for Patents
> P.O. Box 1450
> Alexandria, VA 22313-1450

or faxed to:

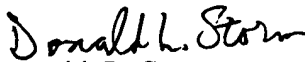> (703) 872-9306, (for formal communications intended for entry)

Or:

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Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA (Sixth Floor, Receptionist)

101.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald L. Storm, of Art Unit 2654, whose telephone number is (703)305-3941. The examiner can normally be reached on weekdays between 8:00 AM and 4:30 PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on (703)305-4379. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office at telephone number (703)306-0377.

Donald L. Storm
Patent Examiner
Art Unit 2654

December 12, 2003